iMama No Calculator

2 STACK AND SOLVE LIKE X

For $i = \sqrt{-1}$, what is the sum $(7 + 3i) + (-8 + 9i)$?

A) $-1 + 12i$
B) $-1 - 6i$
C) $15 + 12i$
D) $15 - 6i$

NOTE: $i^2 = -1$

$$\begin{array}{r} 7+3i \\ +\ -8+9i \\ \hline -1+12i \end{array}$$

A. STACK & SOLVE

3 STACK AND SOLVE LIKE X

What is the sum of the complex numbers $2 + 3i$ and $4 + 8i$, where $i = \sqrt{-1}$?

A) 17
B) $17i$
C) $6 + 11i$
D) $8 + 24i$

NOTE: $i^2 = -1$

$$\begin{array}{r} 2+3i \\ +\ 4+8i \\ \hline 6+11i \end{array}$$

A. STACK & SOLVE

4 STACK AND SOLVE

Which of the following complex numbers is equal to $(5 + 12i) - (9i^2 - 6i)$, for $i = \sqrt{-1}$?

NOTE: $i^2 = -1$

A) $-14 - 18i$
B) $-4 - 6i$
C) $4 + 6i$
D) $14 + 18i$

$$\begin{array}{r} 5+12i \\ -\ 9i^2-6i \\ \hline \end{array} \qquad \begin{array}{r} 5+12i \\ -(9)(-1)-6i \\ \hline 14+18i \end{array}$$

A. STACK!

11 CONJUGATE DENOMINATOR

Which of the following complex numbers is equivalent to $\frac{3-5i}{8+2i}$? (Note: $i = \sqrt{-1}$)

NOTE: $i^2 = -1$

A) $\frac{3}{8} - \frac{5i}{2}$
B) $\frac{3}{8} + \frac{5i}{2}$
C) $\frac{7}{34} - \frac{23i}{34}$
D) $\frac{7}{34} + \frac{23i}{34}$

A. CONJUGATE

$$\frac{3-5i}{8+2i} \cdot \frac{8-2i}{8-2i}$$

B. FOIL DENOM & NUMER

$$\frac{24-6i-40i+10i^2}{64+16i-16i-4i^2}$$

C. REDUCE

$$\frac{14-46i}{68} = \frac{14}{68} - \frac{46i}{68} = \frac{7}{34} - \frac{23i}{34}$$

NOTE HOW DENOMINATOR HELPS YOU ELIMINATE A. AND B.

Radianz No Calculator

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The number of radians in a 720-degree angle can be written as $a\pi$, where a is a constant. What is the value of a ?

NOTE: MULTIPLY BY $\frac{\pi}{180}$ OR $\frac{180}{\pi}$

A. $\times \frac{\pi}{180}$ $\quad 720 \cdot \frac{\pi}{180} = \frac{720\pi}{180}$

B. SOLVE FOR a $\quad = 4\pi = a\pi$

$4 = a$

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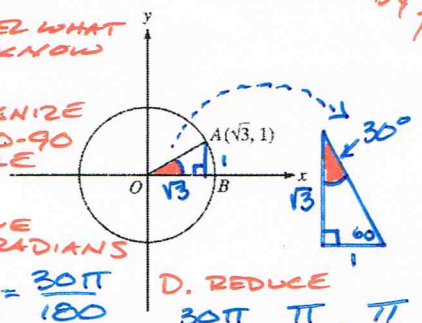
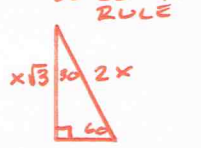
NOTE: MULTIPLY BY $\frac{\pi}{180}$ OR $\frac{180}{\pi}$

A. LABEL WHAT YOU KNOW

B. RECOGNIZE 30-60-90 RULE



NOTE 30-60-90 RULE



C. SOLVE FOR RADIANS

$30 \cdot \frac{\pi}{180} = \frac{30\pi}{180}$

D. REDUCE

$\frac{30\pi}{180} = \frac{\pi}{6} = \frac{\pi}{a}$

In the xy-plane above, O is the center of the circle, and the measure of $\angle AOB$ is $\frac{\pi}{a}$ radians. What is the value of a ?

19

In a right triangle, one angle measures $x°$, where $\sin x^\circ = \frac{4}{5}$. What is $\cos(90° - x°)$?

NOTE: $\sin x = \cos(90 - x)$

A. DRAW & LABEL

$\sin x = \frac{O}{H} = \frac{4}{5}$

B. THIS IS 90-x

$\cos(90-x)$

$\frac{A}{H} = \frac{4}{5}$

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Points A and B lie on a circle with radius 1, and arc $\overset{\frown}{AB}$ has length $\frac{\pi}{3}$. What fraction of the circumference of the circle is the length of arc $\overset{\frown}{AB}$?

D. OR USE 2π

$\frac{\pi}{3} \div 2\pi = \frac{\pi}{3} \cdot \frac{1}{2\pi} = \frac{1}{6}$

A. DRAW & LABEL

B. SOLVE DEGREES

$\overset{\frown}{AB} = \frac{\pi}{3} \cdot \frac{180}{\pi} = 60°$

C.

$\frac{60}{360} = \frac{1}{6}$

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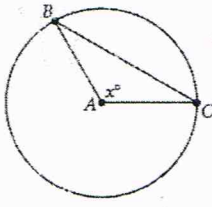

Note: Figure not drawn to scale.

In the circle above, point A is the center and the length of arc $\overset{\frown}{BC}$ is $\frac{2}{5}$ of the circumference of the circle. What is the value of x ?

A. RELATIONSHIP WITH DEGREES AND CIRC/AREA

$\frac{WH}{PT} = \frac{WH}{PT}$

$\frac{360}{x} = \frac{5}{2}$

B. CROSS MULTIPLY

$5x = 720$

$x = 144$